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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/098,627	03/18/2002	Noah Scott Higdon	2651-108	3698

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EXAMINER

EVANS, FANNIE L

ART UNIT	PAPER NUMBER
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2877

DATE MAILED: 07/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/098,627

Applicant(s)

HIGDON ET AL.

Examiner

F. L. Evans

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-60 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 58-60 is/are allowed.
- 6) ☒ Claim(s) 1-18, 20-22, 25-33, 39-55 and 57 is/are rejected.
- 7) ☒ Claim(s) 19,23,24,34-38 and 56 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 June 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

The Information Disclosure Statement

The prior art cited by applicant has been considered.

The Drawings

The drawings are objected to under 37 CFR § 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the second end of the optical fiber centered in the diffraction grating specified in claim 37 and the second end of the optical fiber integral to the diffraction grating specified in claims 38 and 58 must be shown or the features must be canceled from the claims. No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. § 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 14, 15, 18, 33, 46, 47 and 55 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

For clarity, "ASE" must be defined in claims 14 and 15.

The lack of an antecedent for "said predetermined coefficient of thermal expansion" in line 4 of claims 18 and 55, "said optical fiber" in line 1 of claim 33, "said step of disengaging an

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on-board cylinder” in line 1 of claim 46, “said step of installing a new on-board cylinder” in line 1 of claim 47 renders these claims and any dependent therefrom indefinite.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR § 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. § 103(c) and potential 35 U.S.C. § 102(e), (f) or (g) prior art under 35 U.S.C. § 103(a).

Claims 1-15, 21, 22, 25-31, 39-45 and 48-52 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Welch (US 4,247,770) in view of Ray et al (Review of Scientific Instruments), cited by applicant.

Welch discloses an apparatus for and method of using Raman spectroscopy to interrogate surface agents moving relative to the apparatus comprising a laser (29), a beam focusing telescope (46, 48), a first reflector (50), a receiver telescope (52, 54), a spectrograph (28), a range-finder (altimeter- lines 37-40 of column 2) and means for moving the secondary reflector

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(54) of the receiver telescope (lines 41-44 of column 2 and the sentence bridging columns 2 and 3). Applicant's attention is directed to Welch in its entirety with particular attention directed to lines 28-68 in column 2; lines 1-5 in column 3; and lines 22-28 and 32-38 in column 5. Welch does not disclose the use of a second reflector, a laser range-finder and an excimer or an alexandrite laser.

Ray et al disclose an apparatus and method of using Raman spectroscopy to interrogate surface agents. The apparatus comprises a laser range-finder, first and second reflectors, and teach the use of an excimer or an alexandrite lasers. Applicant's attention is directed to Fig. 1, the text under the heading "II. Technical Details" and the paragraph bridging pages 3488 and 3489.

At the time the invention was made, it would have been obvious to one with ordinary skill in the art to use a laser range-finder as the altimeter of Welch since the use of such range-finders with Raman systems was conventional as evidenced by Ray et al. The use of an excimer or an alexandrite lasers in the Raman system of Welch, if desired, would have been obvious in view of the teaching of Ray et al on page 3489. The number of reflectors used in Welch would have depended on the orientation of the output beam of the laser since the reflectors are merely used to fold and direct the beam path of the laser beam. An edge filter substantially opaque to elastically scattered light is shown in Fig. 3 of Ray et al. Using such a filter in the Raman system of Welch would have been obvious to one of ordinary skill in the art because it would have increased the signal-to-noise ratio.

Claims 16, 17, 20, 53, 54 and 57 are rejected under 35 U.S.C. § 103(a) as being

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unpatentable over Welch (US 4,247,770) in view of Ray et al (Review of Scientific Instruments), as applied to claims 1-15, 21, 22, 25-31, 39-45 and 48-52 above, and further in view of Grant et al (US 4,489,239).

The above proposed apparatus/method has essentially every claimed feature except the aluminum honeycomb structure on which the components are fixedly disposed.

In line 27-31 of column 8, Grant et al disclose the use of an aluminum honeycomb material to support optical components.

At the time the invention was made, it would have been obvious to one with ordinary skill in the art to fixedly support the optical components of the above proposed system on an aluminum honeycomb because of its very low thermal expansion coefficient.

Claim 32 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Welch (US 4,247,770) in view of Ray et al (Review of Scientific Instruments), as applied to claims 1-15, 21, 22, 25-31, 39-45 and 48-52 above, and further in view of Galle (US 5,420,723).

The above proposed apparatus/method has essentially every claimed feature except the optical fiber coupling between the receiver telescope and the spectrograph (spectrometer).

In lines 30-35 of column 1, Galle teaches connecting a spectrograph (spectrometer) to a telescope either by direct connection or via an optical fiber.

At the time the invention was made, it would have been obvious to one with ordinary skill in the art to connect the receiver telescope to the spectrograph (spectrometer) of Welch via an optical fiber, if desired, rather than by direct connection in view of the teaching in lines 30-35 of column 1 of Galle.

Allowable Subject Matter

Claims 19, 23, 24, 34-38 and 56 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 58-60 are allowed the prior art of record.

As to claims 19 and 56, the prior art of record, taken alone or in combination, fails to disclose or render obvious an apparatus for laser interrogation of surface agents moving relative to the apparatus comprising an aluminum honeycomb structure with a carbon epoxy covering, in combination with the rest of the limitations of the claims.

As to claim 22, the prior art of record, taken alone or in combination, fails to disclose or render obvious an apparatus for laser interrogation of surface agents moving relative to the apparatus comprising a receiver telescope filter integral with the receiver, in combination with the rest of the limitations of the claim.

As to claims 34 and 58, the prior art of record, taken alone or in combination, fails to disclose or render obvious an apparatus for laser interrogation of surface agents moving relative to the apparatus comprising an optical fiber and spectrograph arranged as claimed, in combination with the rest of the limitations of the claims.

Additional Prior Art

Bret (US 5,305,082) discloses the use of fiber optics to connect a spectrograph to a telescope. See Fig. 5. Mitchell (US 5,521,703) discloses the use of circular to linear optical fibers couple light into a spectrograph. See Figs. 2b and 2c.

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Fax/Telephone Numbers

Papers related to this application may be submitted to Technology Center 2800 by facsimile transmission. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The fax numbers for Technology Center 2800 are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

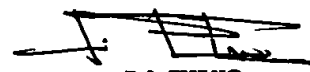
If applicant wishes to send a fax containing a Proposed Amendment for discussion during either a personal interview or a telephone interview then the fax should:

- 1) Contain either the statement "**DRAFT**" or "**PROPOSED AMENDMENT**" on the Fax Cover Sheet; and
- 2) Should be unsigned by the attorney or agent.

This will ensure that the amendment will not be entered into the application and will be forwarded to the examiner as quickly as possible.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to the examiner whose telephone number is (703) 308-4805. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font, can be reached on (703) 308-4881. The TC Receptionist's telephone number is (703) 308-0956.

Any other inquiry of a technical nature, and all inquiries of a general nature including those relating to the status of an application should be directed to TC 2800 Customer Service Office whose telephone number is (703) 306-3329.


F. L. EVANS
PRIMARY EXAMINER
ART UNIT 2877

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July 22, 2003